

Translocase [EF-G-GTP]

↓
Shifting of codon by
hydrolysing GTP

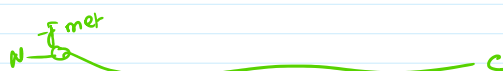
↓
RRF Shift on
A to P site

↓
Ribosome dissociates

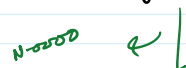
↓
IF3 binds on
small subunit

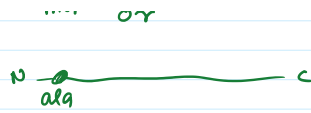
IF3 - induce dissociation
of large subunit

Post Translational modification in Prokaryotic Proteins



Processing ↓ ← deformylase
 ↓ ← aminopeptidase





Eukaryotic Translation

① Initiation

Bacteria

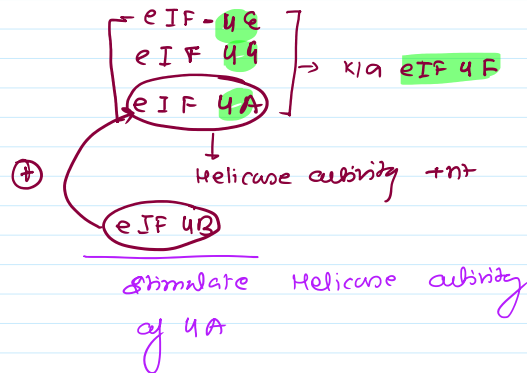
IF1
IF2
IF3

yeast

- eIF1, 1A
eIF2, eIF-5, eIF5B
eIF3

• Cap Binding Protein

- Binds on 5' cap and initiate translation.



* In Eukaryote Ribosomal Binding seq. - nt

↓
Ribosome binds on 5' cap
(- on cap binding protein)

Ribosome → Start Scan for Kozak seq.
Small subunit contain start codon

Elongation

Prokaryotic

- EF-TU
- EF-TS
- EF-G

Eukaryotic

- eEF-1α
- eEF-1β, γ
- eEF-2 [Translocase]

Termination

Prokaryotes

Class I RF

RF-1
RF-2

Eukaryotes

Class I RF

eRF-1
eRF-2

RF-1
RF-2
Class II RF
RF-3

eRF-1
eRF-2
Class II RF
eRF-3 - (GDP)

Ribosome Release

Prokaryotic

- RRF
- EF-G

Eukaryotic

- RNase L Inhibitor ATPase
[RLi-ATPase] - Yeast
- ABC-E ATPase - Human

Translation Initiation in Eukaryotes

EIF-4E → binds on 5' cap of mRNA

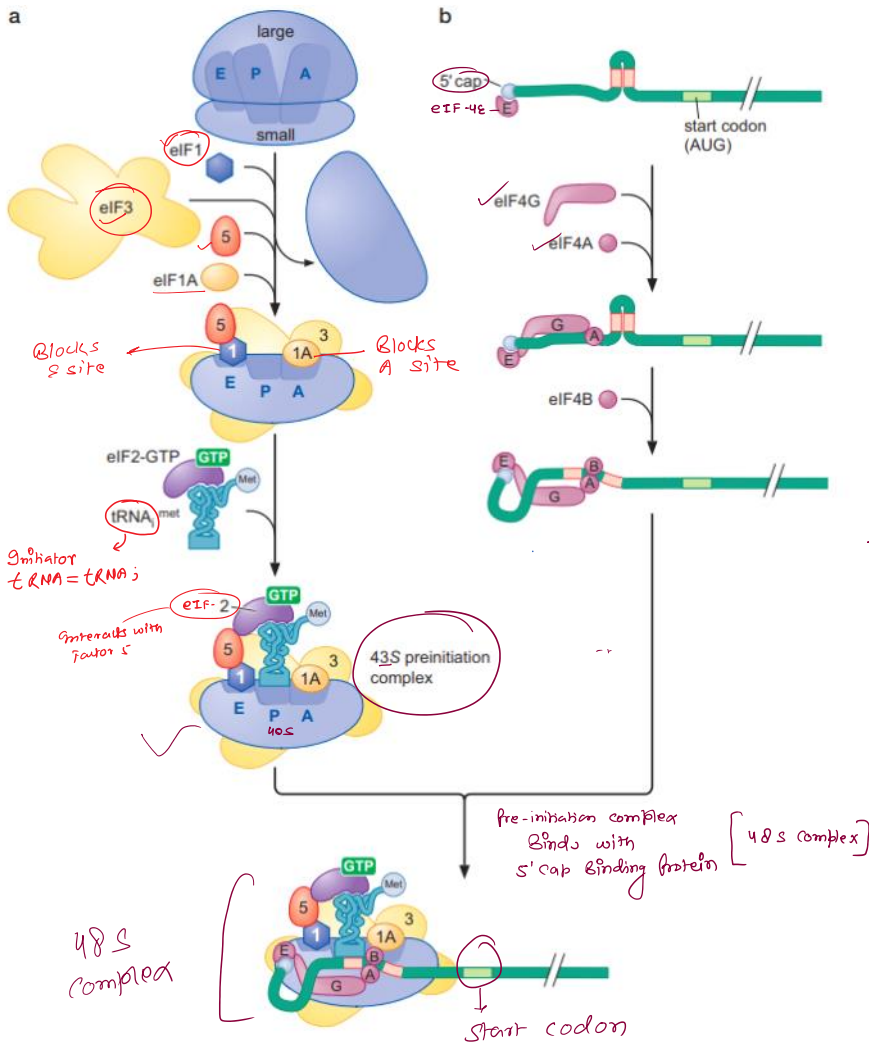
↓
Recruit - EIF-4G ✓

- Recruit EIF-4A
- Interacts with PABP

• EIF-4A

- Helicase activity

↓
Remove 2° str. from RNA



eIF 3 → Associated with Ribosome and Cap Binding protein

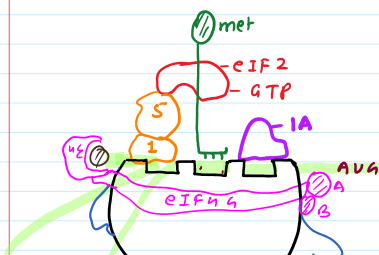
↓
Ribosome scan for Kozak Seq.
(Start codon)

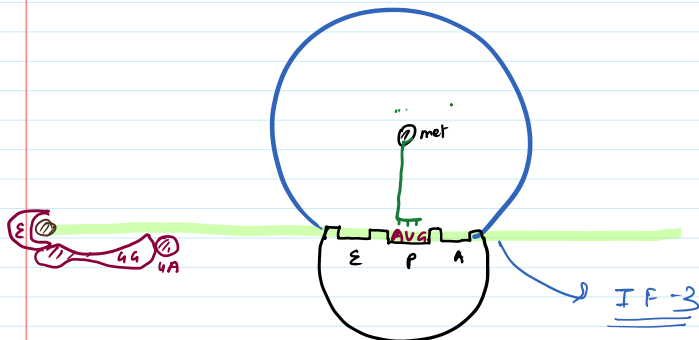
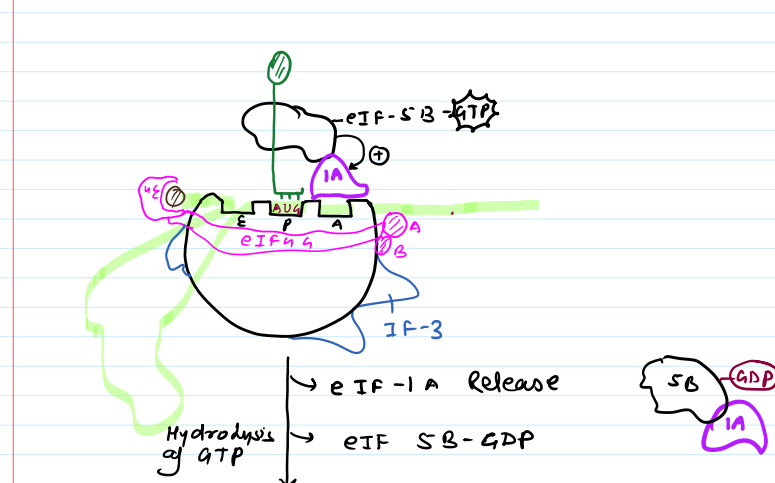
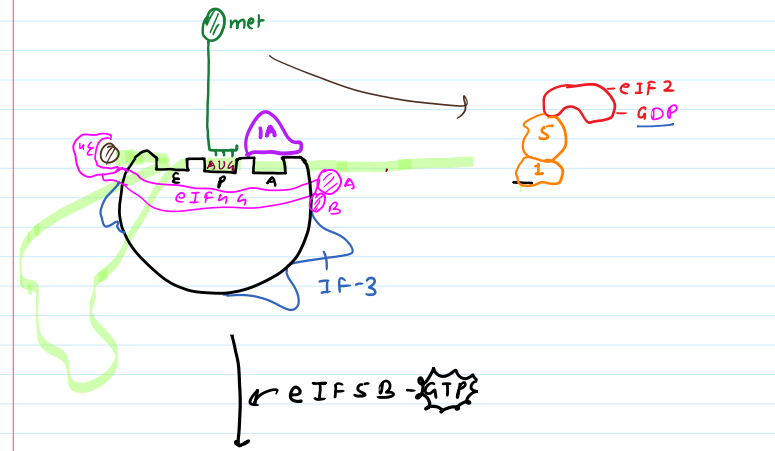
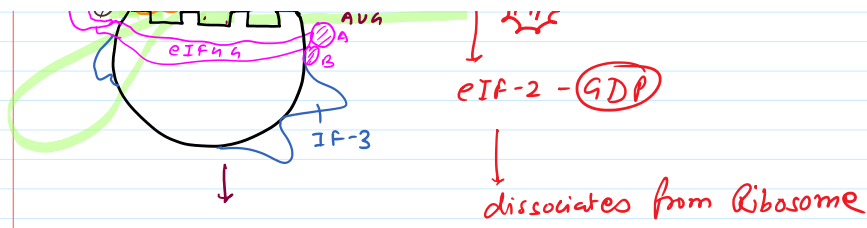
↓
Kozak Seq. enters in P-site of Ribosome

↓
Start codon of Kozak Seq. starts pairing with Anti-codon of tRNA_i

↓
Conformational change in Small subunit of Ribosome

↓
eIF-2 [Associated with tRNA]
↓
eIF-2 - GDP

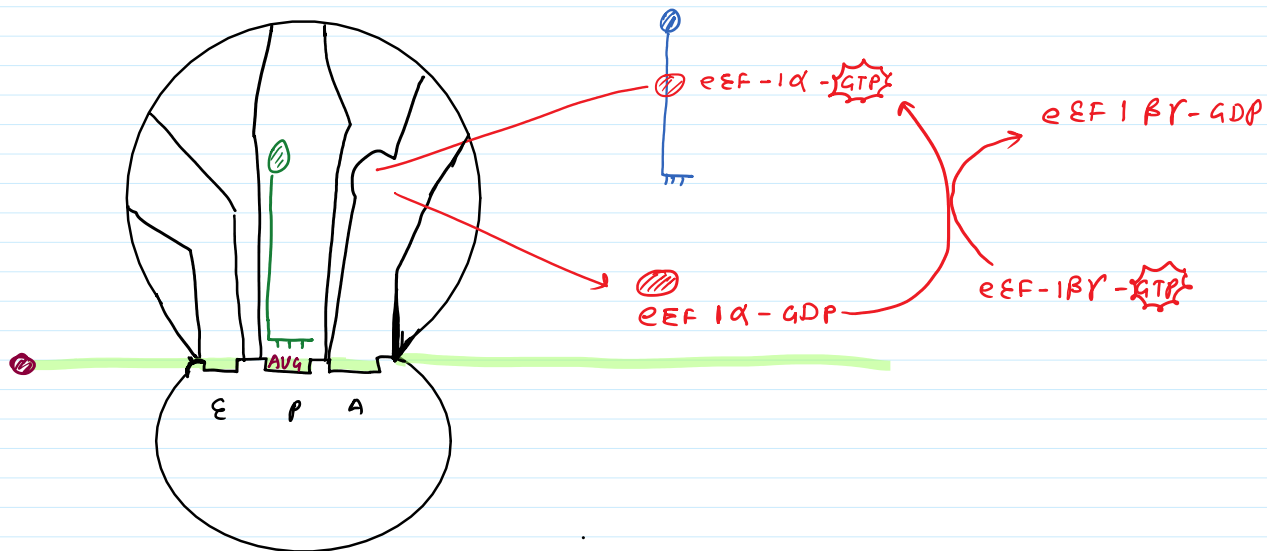




eIF-3 Released [Holds Ribosome on Cap Binding protein]

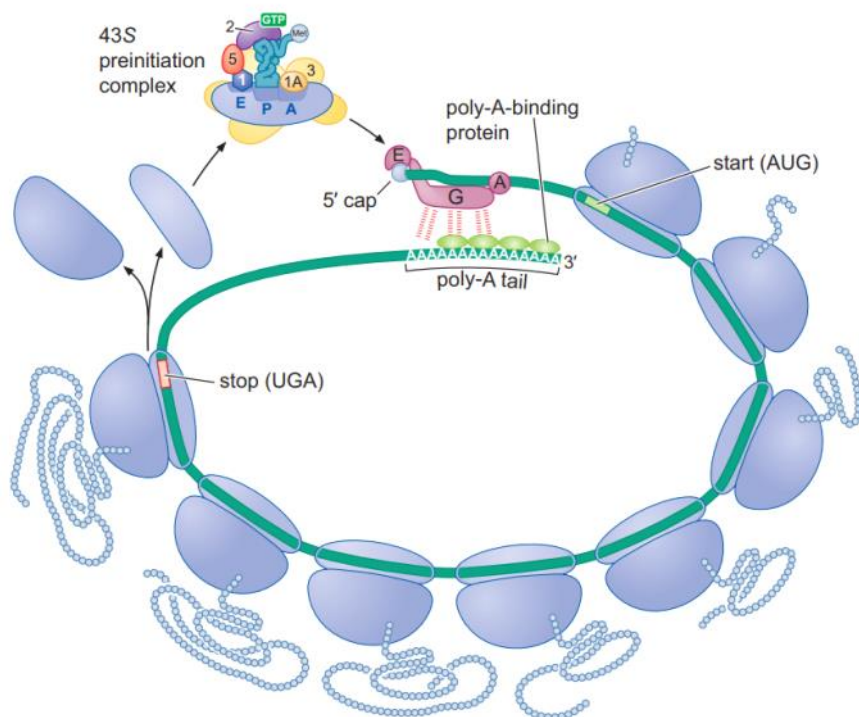
Translation Elongation

Translation Elongation

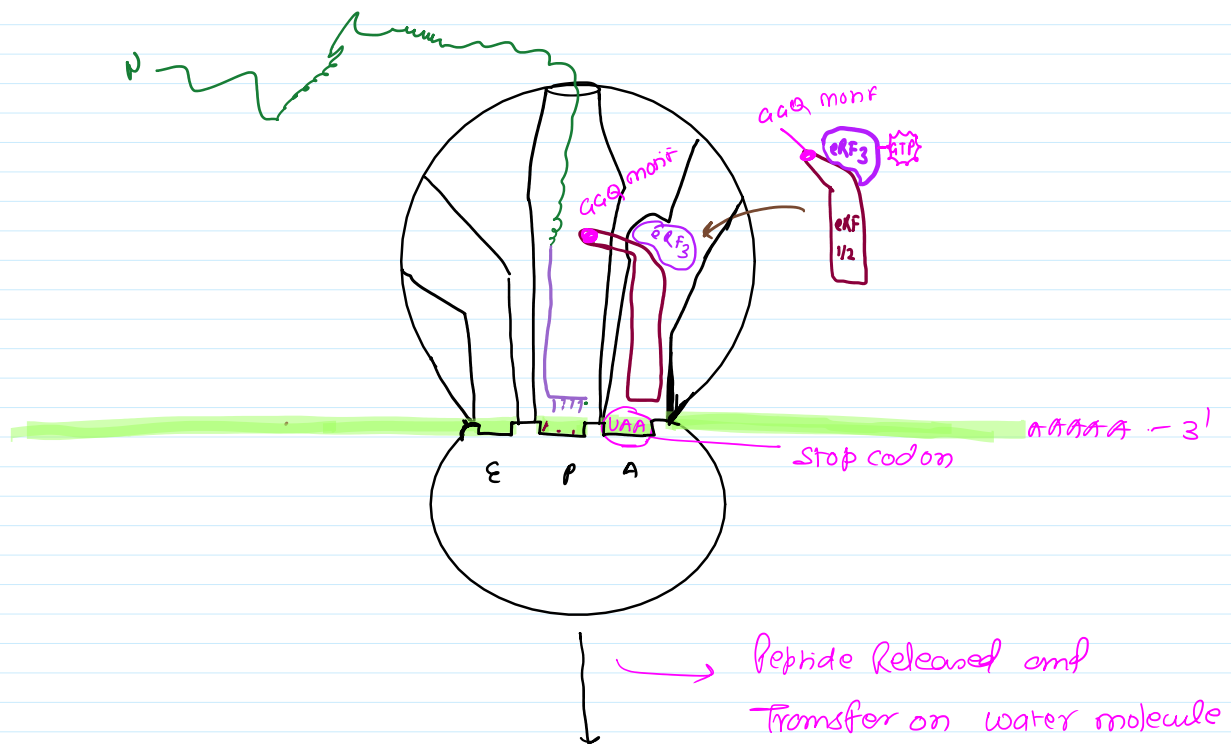


- aa tRNA delivery eEF-1α-GTP
- Peptidyl Transferase activity - 28S rRNA
- Translocase - eEF-2-GTP

Translation Termination



Translation Termination



RF-3-GTP Enters with

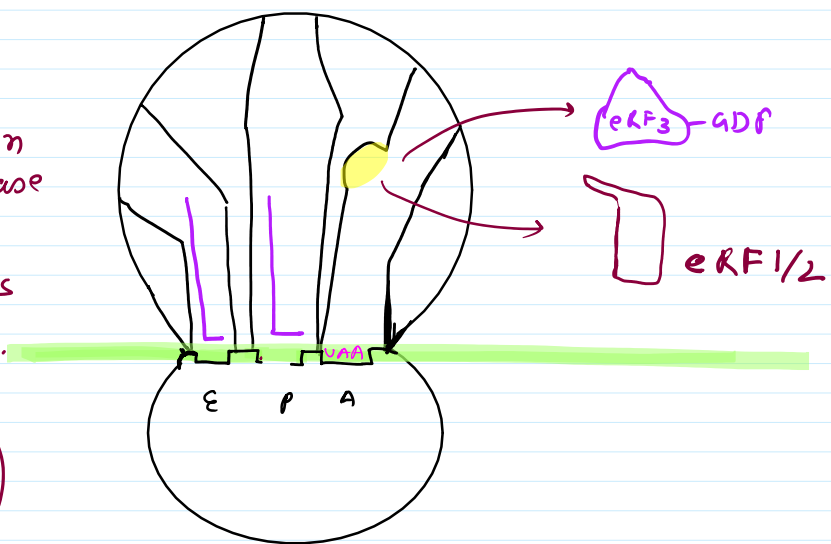
RF-1/2

↓
eRF1/2 helps in Peptide Release

↓
eRF-3-GTP is hydrolyzed

↓
eRF3-GDP + RF-1/2

Released



Recycling of Ribosome

Rli ATPase - Enters in A site

↓
helps in dissociation of Ribosome